

## Preparing for the CompTIA A+® Certification Exam: Hands-On - 5 Days

### Course 445 Overview

- You Will Learn How To**
- Prepare to pass the CompTIA 2009 A+ Essentials and A+ Practical Application Certification Exams
  - Identify the fundamental principles, tools and troubleshooting techniques for personal computers
  - Apply best practices for configuration and optimization of personal computers and laptops
  - Explore Windows configuration and upgrading options
  - Analyze the primary components of networks, cabling and networking protocols
  - Recognize computer security techniques to prevent unauthorized access
- Course Benefits** This course prepares you for the CompTIA 2009 A+ Essentials Exam (220-701) and the A+ Practical Application Certification Exam (220-702), the two exams required to achieve the CompTIA A+ 2009 Certification. You gain the knowledge to install, configure and optimize personal computer hardware and operating systems, providing you with the necessary skills to take the CompTIA A+ 2009 Edition Certification Exams. This course includes coverage of Windows 7 CompTIA A+ exam topics.
- Who Should Attend** Anyone who wants to achieve A+ Certification, including government personnel seeking IAT-1 certification to fulfill the DoD 8570.1 Directive. You should have at least six months of work experience in PC support.
- Hands-On Training** Hands-on exercises and end-of-chapter exam questions prepare you for the A+ Essentials and Practical Application Certification Exams. Exercises include:
- Disassembling the PC
  - Mapping the motherboard
  - POST and examining the PC BIOS settings
  - Installing adapter cards
  - Configuring a serial ATA hard drive
  - Installing Windows
  - Configuring TCP/IP network settings

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### Course 445 Outline

#### A+ Exam Overview and Strategies

- Purpose and benefits
- Basic exam structure

#### Identifying and Installing Personal Computer Components

##### Microprocessors

- Intel
- Pentium
- Core 2 Duo
- AMD
- Athlon
- Clock circuits
- Cache memory
- 32 bit vs. 64 bit

##### Identifying motherboard components

- CPU and Chipset
- CMOS RAM
- BIOS Flash EEPROM
- Memory slots: DIMM, RIMM
- Integrated I/O connectors

##### The power supply and display

- Testing power supplies
- Display types: CRT, LCD
- Display adapter cards: PCI, AGP, PCIe

##### Installing and expanding memory

- RAM device types: SDRAM, DDR/DDR2/DDR3, RAMBUS
- Packaging formats: DIMM, RIMM, SoDIMM, Micro-DIMM
- Error checking: parity, nonparity, ECC

##### PC communication devices

- Parallel: EPP, ECP
- Serial interfaces
- USB 2.0
- Network interface cards
- IEEE 1394/Firewire

##### Data storage systems

- Hard drive types: EIDE, PATA, SATA, eSATA, SCSI
- Partitioning and formatting hard disks
- Optical storage devices

##### Troubleshooting strategies for PCs

- Initial troubleshooting steps
- Diagnostic tools
- Power-On Self Test (POST)
- CMOS setup configuration

#### Maintaining Portable Computers

##### Identifying components

- RAM
- Hard drives
- Input devices
- NICs and Mini-PCI
- Batteries and power considerations

##### Troubleshooting portable PCs

- Cleaning
- Heat
- Protecting from physical damage
- Diagnosing common portable problems

#### Supporting Printers and Scanners

##### Installing and configuring printers and scanners

- Dot matrix
- Inkjet
- Laser
- Laser printer and scanner components

##### Troubleshooting printer and scanner problems

- Printer self test
- External cables
- Printer/scanner interface

#### Managing Windows Operating Systems

##### Windows architecture

- Main system files: BOOT.INI, NTLDR, NTDETECT.COM
- File systems: FAT, NTFS
- Windows registry

##### Installing and upgrading Windows

- Comparing Windows OS features: 2000, XP 32/64 bit, Vista 32/64 bit, Windows 7 32/64 bit
- Identifying valid upgrade paths
- Installing service packs and device drivers

##### Managing, optimizing and troubleshooting

- Administering Windows with Event Viewer and Task Manager
- Optimizing virtual memory and hard disk performance
- Troubleshooting Windows startup and hardware problems

#### Fundamentals of Networking

##### Network cabling and protocols

- UTP (CAT5, 5e, CAT6), STP, Fiber

- TCP/IP, IPv4, IPv6, NETBEUI/NETBIOS

##### Wireless networking

- IEEE 802.11a, b, g, n
- Wireless security: WEP, WPA, WPA2

##### Internet connection technologies

- LAN/WAN, ISDN, DSL, Cable, Satellite
- IP addressing

##### Troubleshooting network and Internet problems

- TCP/IP settings: Gateway, subnet mask, DNS
- PING, TRACERT, NETSTAT, IPCONFIG

#### Computer Security Best Practices

##### Ensuring physical security

- Preventing unauthorized access
- Hardware authentication devices

##### Detecting and fighting malware

- Authentication technologies
- Firewalls
- Windows User Account Control (UAC)

#### Ensuring Safety in the Workplace

##### Safe operating environments

- Protecting against Electrostatic Discharge (ESD)
- Environmental guidelines
- Hardware disposal procedures

##### Communication and Professionalism

- Speaking with clear and concise statements
- Employing active listening skills
- Applying effective customer service practices